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A Comparative Study of Green Revolution and Rural Development in Asia

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The Project's History

There is no doubt that the economic development of East and Southeast Asian countries has been greatly promoted by the so-called Green Revolution. To be precise, the adoption of the new rice-growing technology in the region increased the land productivity in rice-growing in almost all areas of these countries. Nevertheless, the diffusion of the technology was not as rapid as initially anticipated since various natural and social barriers were met in many parts of these countries. Moreover, even when it was successful, there appeared a number of new socio-economic problems like landless laborers and the disorganization of rural communities. Thus it was recognized as important to evaluate the impact of the green revolution in the broad context of rural development. The great interest in this vital issue among Asian economists as well as other social scientists and tropical agronomists in the early 1970s seems to have started projects of similar nature in several research institutes. One project at IRRI is well-

known.¹⁾ The project at the Center for Southeast Asian Studies, Kyoto University, began in 1975 with the support of the Japanese Ministry of Education.²⁾

This collection of articles constitutes the last contribution from this project. Earlier reports appeared in a special issue of *Southeast Asian Studies* as The Proceedings of the Seminar on the Problems of Rice-growing Villages in Malaysia, Vol. 16, No. 2, 1978, and later a fairly comprehensive report was issued entitled *Ecology, New Technology and Rural Development in Thailand and Malaysia—with special reference to the role of education*, which was edited by the late Professor

1) See, for instance, IRRI [3].

2) In the initial organization stage, the project received funds from the UNESCO Committee in Japan. The Regional Office of UNESCO in Bangkok as well as the Japan UNESCO Committee gave continuous support throughout the development of the research. The Association of Development Research and Training Institutes in Asia and the Pacific sponsored this project's seminar in Kuala Lumpur, December 14-17, 1977. A substantial part of the research was funded by grants from the Ministry of Education in 1976 and 1977, which were supplemented in 1977 and 1978. The Kansai Economic Research Center also gave financial support in the final stage of the project. To all these organizations we wish to express our deep gratitude.

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Koichi Mizuno, the Center for Southeast Asian Studies, Kyoto University, March 1979.³⁾ The project was a comparative study of the interactions between the green revolution and rural development in the countries of Korea, Taiwan, the Philippines, Thailand, Malaysia, Indonesia, and India. The unexpected death of Koichi Mizuno resulted in the termination of the project, and the availability of similar works in the Philippines and India made it unnecessary to survey these two countries. Comparable field work in Indonesia did not materialize. Presented here are final reports of the field work in Korea and Taiwan and that in Thailand and Malaysia conducted by the staff of the Kyoto University team and by two native scholars working independently. It is hoped that these reports will provide the interested reader with detailed, first-hand information on the changes taking place in the rural communities in East and Southeast Asian countries.

3) Since this report was made available to only a limited number of specialists, the articles added in this report to those published in *Southeast Asian Studies* are quoted below:

1. T. Tomosugi, "Technology and Social Change in Two Thai Villages,"
2. M. Kuchiba, "Continuity and Changes in a Malay Paddy-Growing Village in Kedah,"
3. Y. Tsubouchi, "Socio-Economic Change in a Kelantanese Village, 1970-77,"
4. Y. Murata, "Image and Function of Rural Schools in Thailand and Malaysia,"
5. T. Ayabe, "School and Temple in Rural Community Development in Thailand—financial relationship."

The Problems of Rural Development

In the field of anthropological studies of Southeast Asian societies, a number of field work reports have accumulated over the past quarter of a century, and as Koichi Mizuno said, it is not impossible now to draw the blueprints of characteristic Southeast Asian rural communities even with their local variations. The observations on the changes in village life, however, are very scanty and do not seem to have ever been collected systematically. The popular term *rural development* may have been a practical answer to the urgent need of raising the rural population's standard of living in contrast to the ever-improving living conditions of the urban population. But the integrated approach to the problems of rural development has not yet been developed by any scientist in the various disciplines. One approach dealing with rural change was offered by James C. Scott [7] and centers around the idea that the recent change in peasant society is creating a new moral order of "post-peasant society." He is trying to identify the pattern of such a transformation in Southeast Asian rural communities. Needless to say, this area of research can hardly be achieved without more carefully designed field surveys which can depict the changes over time. The survey prepared for this project was an initial step in this direction.

The survey was planned with the following objectives in mind:

1. to provide comparable data on environment, rice technology, and farm economy in different regions and countries;
2. to analyze the changes in living standards of peasant farmers living under different ecological conditions and developing different patterns of rice cultivation;
3. to identify the effects of new rice-growing technology on the socio-economic life of rural communities in Southeast and East Asia, which

are admittedly mixed with the effects of urbanization and industrialization.

In brief, it attempted to use a basic anthropological approach to the problems of rural development in a cross-cultural perspective.

The standard questionnaire prepared for this survey covers: A. Education and Social Consciousness; B. Technology; C. Economy; D. Family and Society; E. Miscellaneous; and F. Ecology, as exemplified below.

Questionnaire

Rural Development and Socio-economic Changes

Name of Respondent: _____
 Relation to Household Head: _____
 Address: _____
 Date of Interview: _____
 Name of Interviewer: _____

A. Education and Social Consciousness

- A1. Whom do you respect most in your village? Please give us the names and occupations of two persons you respect most. And why do you respect him? Please choose three reasons among the following list in order.*

Names	Occupations	Reasons		
		(1)	(2)	(3)
		(1)	(2)	(3)

- | | |
|---------------------------------|--------------------------------|
| * a. Modern knowledge | k. Fostering many children |
| b. Moral excellence | l. Luck |
| c. Rich | m. Good birth |
| d. Religious knowledge | n. Social status |
| e. Render service for villagers | o. Wisdom |
| f. Good in counselling | p. Physical strength |
| g. High education | q. Knowledge of better farming |
| h. Religious piety | r. Eloquence |
| i. Innovativeness | s. Others (specify) |
| j. Hard work | |

- A2. Who is the most influential person in the village? Why? What is his occupation?
- | | | |
|-------|------------|---------|
| Name | Occupation | Reasons |
| _____ | _____ | _____ |

- A3. To compare with ten years ago, are there differences on the characteristics of an influen-

tial man in your village?

() Yes ; () No

If yes, what are the differences?

Present : _____

Ten years ago : _____

- A4. To compare with ten years ago, is there any change in your attitudes toward donation to public affairs? Please check the following items.

		To donate more	Don't donate	As average standard
Donation to school	Ten yrs. ago	_____	_____	_____
	Present	_____	_____	_____
Donation to temple	Ten yrs. ago	_____	_____	_____
	Present	_____	_____	_____
Donation to others (specify)	Ten yrs. ago	_____	_____	_____
	Present	_____	_____	_____

- A5. Have you ever occupied and public positions or belonged to any organizations?
Name of position and organization

Before: _____

Present: _____

- A6. Are you more interested than before in participating in the various activities of the above organizations? Why?

() Yes; () No

Reasons: _____

- A7. To compare with before (ten years ago), is there any change in your attitudes toward political affairs? Why?

() Less interest than before

() Interest as before

() More interest than before

() Not interest as before

Reasons: _____

- A8. To compare with before (ten years ago), are you more interested in knowing what happens outside the village?

() Yes; () No

Reasons: _____

- A9. To compare with before (ten years ago), who do you think is influential in village affairs?
Please indicate in order.

	Teacher	Village head	Landlord	Civil servant	Others
Before	_____	_____	_____	_____	_____
Present	_____	_____	_____	_____	_____

- A10. If your children are at the junior middle school ages, are they all attending to school?
() Yes; () No; () Inappropriate

If no, who are they (answer in terms of relation) and what are the reasons for that? Choose three among the following list.*

Children	Reasons
1. _____	a; b; c; d; e; f; g; h; i; j ()
2. _____	a; b; c; d; e; f; g; h; i; j ()

- * a. Schooling costs a lot
b. Children have to help parents' work
c. The school is located too far
d. School education is no use for living
e. Teachers are not good
f. Children lack ability

- g. Children do not like to study
- h. Children have jobs
- i. Sickness
- j. Others (specify) _____

All. If your children are at the lower high school ages, are they all attending school?
 () Yes ; () No ; () Inappropriate
 If no, who are they (answer in terms of relation) and what are the reasons for that?
 Choose three among the following list.*

Children Reasons

1. _____ a; b; c; d; e; f; g; h; i; j ()
2. _____ a; b; c; d; e; f; g; h; i; j ()

- * a. Schooling costs a lot
 b. Children have to help parents' work
 c. The school is located too far
 d. School education is no use for living
 e. Teachers are not good
 f. Children lack ability
 g. Children do not like to study
 h. Sickness
 i. Others (specify) _____

A12. What do you think about schooling?
 () Good; () Not good

Reasons, if good

- () a. To learn reading & writing
- () b. To get new knowledge
- () c. To learn good manners
- () d. To learn new farming techniques
- () e. To get better job opportunities
- () f. To contribute to national development
- () g. To improve standard of living for family
- () h. To contribute to rural development
- () i. For the future of children
- () j. Children and family are respected by villagers
- () k. Others (specify) _____

Reasons, if not good

- () a. The school is too far
- () b. It is too expensive
- () c. I need children's help for work
- () d. No use for living
- () e. Teachers are not good
- () f. Present schooling is not satisfactory
- () g. No use for children's future
- () h. Others (specify) _____

A13. Have you ever attended any adult education?

() Yes; () No

If yes, what do you feel about it?

() Good; () Not good

Reasons, if good

- () a. To learn reading & writing
- () b. To get new knowledge
- () c. To learn better farming techniques
- () d. To be able to meet good friends

- () e. To contribute to rural development
- () f. To solve the problems in daily life
- () g. To improve standard of living
- () h. To learn family planning
- () i. Others (specify) _____

Reasons, if not good

- () a. No use for living
- () b. Not interested in what is taught
- () c. Too difficult to learn
- () d. Teachers are not good
- () e. Others (specify) _____

(A14-A16 are only relevant for those who have children less than fifteen years old.)

A14. How many years of schooling do you expect your son (daughter) to receive and why?
(Indicate the subject in senior school or college.)

(1) Son

Grade	Reasons
a. Primary 6	a; b; c; d; e; f; g; h; i; j ()*
b. Junior Middle 9	} a; b; c; d; e; f; g; h; i; j ()**
c. Senior Middle 12	
d. College 13. 14. 15. 16. 17. 18.	

(2) Daughter

Grade	Reasons
a. Primary 6	a; b; c; d; e; f; g; h; i; j ()*
b. Junior Middle 9	} a; b; c; d; e; f; g; h; i; j ()**
c. Senior Middle 12	
d. College 13. 14. 15. 16. 17. 18.	

* Reasons for primary school only

- a. Lack of financial resources
- b. Children have to help parents' work
- c. The secondary school is located too far
- d. Children lack ability
- e. Children are physically handicapped
- f. Children do not like to study
- g. Schooling is no use for living
- h. Girls don't need secondary education
- i. Children are sick
- j. Others (specify) _____

** Reasons for high school and higher education

- a. Having financial resources for study
- b. Children have ability
- c. To be able to get a good job
- d. Children will be happy in future
- e. Because parents did not receive such education
- f. Education will contribute to national development
- g. Parents get a sense of honor
- h. Son needs higher education
- i. Others (specify) _____

A15. Which of the following subjects do you want the school to intensify?

	Son	Daughter
a. Read & write	_____	_____
b. Modern liberal arts	_____	_____
c. Religious & moral education	_____	_____
d. Business education	_____	_____
e. Training for farming	_____	_____
f. Practical education for daily life	_____	_____
g. Civic education	_____	_____
h. Health education	_____	_____
i. Rural development	_____	_____
j. Others (specify) _____	_____	_____

A16. What kind of career do you want them to choose ? (Choose two and order them.)

1. Son

- | | |
|----------------------|-------------------------|
| () a. Civil servant | () f. Politicians |
| () b. Teacher | () g. Soldier |
| () c. Farmer | () h. Worker |
| () d. Policeman | () i. Clerk |
| () e. Merchant | () j. Others (specify) |

2. Daughter

- | | |
|----------------------|-------------------------|
| () a. Civil servant | () f. Nurse |
| () b. Teacher | () g. Waitress |
| () c. Farmer | () h. Worker |
| () d. Policewoman | () i. Clerk |
| () e. Merchant | () j. Others (specify) |

B. Technology

B1. Did you apply Kao-hsing 139, Tainan 5 or Wu-ming Tson of rice in your field?

- () Yes
- () No,
- If no, what was the reason for it? (Check one only.)
- () a. Seeds were not available
- () b. Water condition was too poor
- () c. They required too much fertilizer
- () d. The paddy price of these was too low
- () e. Never tried before
- () f. Yield was not as high as expected
- () g. Tried before but failed
- () h. Others (specify) _____
- Then, if the problems you have mentioned were solved, what would you do? (Choose one.)
- () a. I would try to plant it before anybody else.
- () b. I would try to plant it after it has been tested at experiment plots.
- () c. I would try to plant it if somebody else succeeds.
- () d. I would never try.
- () e. Others (specify) _____
- If yes, when did you plant the Kao-hsing 139, or Tainan 5 for the first time? Since then, have you continuously planted it? If no, when did you start planting it again?
- (1) _____ AD; (2) () Yes; (3) () No, → _____ AD
- How did you get the knowledge of the Kao-hsing 139 or Tainan 5 of rice then? (Multiple choice.)

- () a. Newspaper () e. Village leaders
 () b. Radio () f. Neighbors, kinsmen & friends
 () c. School () g. Extension service
 () d. Adult education () h. Others (specify) _____

→Which is the most influential upon your adoption of the Kao-hsing 139 or Tainan 5?

- () a. Newspaper () e. Village leaders
 () b. Radio () f. Neighbors, kinsmen & friends
 () c. School () g. Extension service
 () d. Adult education () h. Others (specify) _____

B2. We would like to know about the frequency of good or bad cropping. How often did you get good crops, normal crops, bad crops, and total failure during the past ten years? (If the respondent had planted rice less than ten years, take the period during which he has done.)

Good crops, Normal crops, Bad crops, Total failure
 Frequencies _____

B3. In your view, what are the causes of bad crops you got during the above period? Please choose three in order among the followings.

- (1) _____ (2) _____ (3) _____
 a. Rain fall (+, -) h. Weeds
 b. Irrigation i. Disease
 c. Drainage j. Insects
 d. Soil k. Labor force
 e. Seeds l. Appropriate advise
 f. Fertilizer m. Others (specify)
 g. Rats

B4. In average, how much of chemical fertilizer and manure is (was) used in your paddy field per chia?

	Present Kg (pack)/chia	10 years ago Kg (pack)/chia
Chemical fertilizer	_____	_____
Manure	_____	_____

B5. To compare with ten years ago, how many times did you weed in each term of rice? In which way? Has the frequency of weeding increased or decreased?

() Increase; () Decrease

	Present		10 years Ago	
	First-crop	Second-crop	First-crop	Second-crop
Hand weeding	_____	_____	_____	_____
Using machine	_____	_____	_____	_____
Applying herbicide	_____	_____	_____	_____

C. Economy

C1. How many chias did your family own, lease in and lease out during the 1977/78 crop year?

	Owned	Leased in	Leased out	Total
Paddy field	_____	_____	_____	_____
Upland	_____	_____	_____	_____
Others (specify)	_____	_____	_____	_____
Total	_____	_____	_____	_____

Identify farming status:

() Owner farmer; () Landlord; () Tenant

C2. Is your family in debt at present? If yes, how much is it?

() Yes, NT\$ _____. Why? _____
 () No

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C3. Did you save any money last year? If yes, how much was it?

() Yes, NT\$ _____

() No

C4. Has your family's income increased during the past five years?

() Much increased

() Increased

() Same

() Decreased

What do you think the reason is for it?

C5. In the past ten years how many items of farming instruments have increased or decreased in your family?

Increased items: _____

Decreased items: _____

Reasons: _____

C6. In the past ten years how many kinds of crops have been increased or decreased in your farm land?

Increased crops: _____

Decreased crops: _____

D. Family and Society

D1. In your farm, how many people worked for rice-growing during 1977/78 crop year?

Men _____; Women _____; Children under 15 _____

D2. During the same period, did your family hire any people for paddy cultivation?

() Yes; () No

If yes, how many people did you hire at each stage of cultivation for different varieties of rice? And how much did you pay for them? Besides hired labor, did your family ask for help without pay during the same period?

() Yes; () No

If yes, how many people did you ask for?

Growth stage	No. of hired labor	Payment	No. of free labor
Ploughing	_____	_____	_____
Transplanting & broadcasting	_____	_____	_____
Irrigation	_____	_____	_____
Weeding	_____	_____	_____
Harvesting	_____	_____	_____
Threshing	_____	_____	_____
Transportation	_____	_____	_____
Total	_____	_____	_____

D3. Since when did your family have to depend much on hired labor?

() years ago; () Inappropriate

D4. How often do you yourself do each of the following?

	O	S	R	N	F
(1) To read newspapers	_____	_____	_____	_____	_____
(2) To listen to the radio	_____	_____	_____	_____	_____
(3) To attend village meeting	_____	_____	_____	_____	_____
(4) To visit extension farm	_____	_____	_____	_____	_____
(5) To visit experiment class	_____	_____	_____	_____	_____
(6) To visit farmers' association office	_____	_____	_____	_____	_____
(7) To attend main religious gatherings of the year	_____	_____	_____	_____	_____
(8) To attend adult school	_____	_____	_____	_____	_____

- (9) To visit district office _____
 (10) To visit nearby town _____
 (11) To visit provincial town _____

Abbreviations:

O=often; S=sometimes; R=rarely; N=never; F=frequencies in a year (or a week).

D5. In your family, who initiates and makes final decision on the following matters?

- (1) To adopt new varieties of rice _____
 (2) To buy large equipment _____
 (3) To sell harvested rice _____
 (4) To dispose of farm land _____
 (5) Practice of family planning _____
 (6) Years of children's schooling _____
 (7) Job for children _____
 (8) Selection of their spouse _____

D6. When you want someone's help on the following matters, to whom do you go first?

- | | P | S | K | N | O |
|--|-------|-------|-------|-------|-------|
| (1) To borrow rice in shortage | _____ | _____ | _____ | _____ | _____ |
| (2) To borrow money in shortage | _____ | _____ | _____ | _____ | _____ |
| (3) To borrow farming tools | _____ | _____ | _____ | _____ | _____ |
| (4) To help for building and repairment of house | _____ | _____ | _____ | _____ | _____ |
| (5) To help for transplanting | _____ | _____ | _____ | _____ | _____ |
| (6) To help for harvesting | _____ | _____ | _____ | _____ | _____ |
| (7) To help for holding marriage & funeral | _____ | _____ | _____ | _____ | _____ |
| (8) Personal matters | _____ | _____ | _____ | _____ | _____ |

Abbreviations:

P=parents; S=sibling; K=other kinsmen; N=neighbors; O=others (specify)

D7. How many times did you visit the village head, religious leaders, school teachers, and farmers' association workers during the past one year? And for what purpose?

- | | Times | Purpose |
|---------------------------------|--|---------|
| 1. Village head | a. _____
b. _____
c. _____
d. _____ | |
| 2. Religious leaders | a. _____
b. _____
c. _____
d. _____ | |
| 3. School teachers | a. _____
b. _____
c. _____
d. _____ | |
| 4. Farmers' Association workers | a. _____
b. _____
c. _____
d. _____ | |

D8. In your opinion, what do you think of the main works of the village head and/or hamlet leaders?

- () a. To convey administrative information to villagers
 () b. To organize villagers for irrigation work
 () c. To provide credit for villagers
 () d. To settle down disputes among villagers
 () e. To represent villagers' needs to the local government

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- () f. To organize villagers to maintain village roads and other public facilities
 () g. To arrange religious activities held in the village
 () h. To protect and look after the village
- D9. In order to be a leader in an agricultural cooperative, what qualities do you think important?
 () a. Having a lot of resources
 () b. High ability to read & write
 () c. Religious piety and moral
 () d. Administrative capability
 () e. Kindness and generosity
 () f. Having good friends among government officers
 () g. Others (specify) _____
- D10. Which of the following facilities do you have in your family?
 () Phonograph () T.V. set
 () Radio () Electric cooker
 () Electric fan () Motorcycle
 () Sewing machine () Refrigerator
 () Sofa () Washing machine
 () Telephone
- D11. To compare with ten years ago, if someone in your family get (got) sick, which way is (was) used most often to cure it?
- | | A | B | C | D | E | F | G |
|---------------|-------|-------|-------|-------|-------|-------|-------|
| Ten years ago | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| Present | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
- Abbreviations:
 A=Go to modern doctor
 B=Go to traditional Chinese doctor
 C=Go to drug store
 D=Go to temple or witch doctor
 E=Local herb medicine
 F=Mixed type of modern & traditional doctor with more traditional doctor
 G=Mixed type of modern & traditional doctor with more modern doctor
- D12. How many persons live together in your family?
 _____ persons
- D13. Would you please tell me in detail about the age, sex, education, occupation, and income of your family members?
- | Relation to the household head | Age | Sex | Years of education | Main job | Occupation & income
Income per year | Side job | Income per year | Note |
|--------------------------------|-------|-------|--------------------|----------|--|----------|-----------------|-------|
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
- D14. According to the information presented in D13, please determine the family structure of the household interviewed (to be determined by interviewer).
 () Extended family (Include two or more nuclear families with kinship relations)
 () Stem family (Include grandparents, parents, and unmarried children)
 () Nuclear family (Include parents and unmarried children)
- D15. To compare with ten years ago, which kind of family structure (type) do you prefer to? Why?

	Family structure	Reasons
10 years ago	_____	_____
Present	_____	_____

E. Miscellaneous

E1. Suppose you have obtained an extra income of two hundred thousand N.T. dollars, how do you use it? Please give budget for the extra income.

- a. Religious purposes _____
- b. Ceremonies _____
- c. To purchase land _____
- d. Commercial purposes _____
- e. Better farming _____
- f. For daily necessities in the family _____
- g. Housing _____
- h. Pay debt _____
- i. Deposit _____
- j. Education _____
- k. Precious metal or stone _____
- l. T.V. set, etc. _____
- m. Cattle & buffalo _____
- n. Others (specify) _____
- Total \$ 200,000

No answer _____

E2. In your view, in the last five years has your life become harder, easier, or the same?

() Harder; () Same; () Easier

E3. If there is an opportunity to increase your income greatly through farming, would your family move to another place?

() Yes; () No

E4. If there is an opportunity to get a better job, would your family move to any other place?

() Yes; () No

If no, then would you change job, if your family need not to move out of your village?

() Yes; () No

E5. What kind of job do you think the best, if you are able to choose any one?

Specify: _____

E6. We suppose that the present farm life is not the same as that ten years ago. Changes occur any time and it may be developmental, stagnant, or degenerative. What image do you have in mind with regard to the future perspective of your village?

F. Ecology (To be answered by the extension agents)

F1. How many cropping patterns did your village adopt during this and last year?

Cropping patterns	% of farmers adopted
_____	_____
_____	_____
_____	_____

F2. Would you please tell us the cycle of each pattern in the following, as it comes into your mind?

Patterns J F M A M J J A S O N D J F M A M J J A S O N D

1 _____

2	_____
3	_____
4	_____
5	_____

F3. What about ten years ago?

Patterns	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1	_____																							
2	_____																							
3	_____																							
4	_____																							
5	_____																							

The Methodology of Research

The villages surveyed were deliberately chosen for the reasons that they had been surveyed about ten years before and that whenever possible, on the basis of their physiographic characteristics, they represented different areas of the respective countries. The former consideration was a requisite for the project. Fortunately we had made a number of agro-economic surveys of villages in Thailand and Malaysia over many years and had no difficulty in choosing six villages in Thailand and three in Malaysia.⁴⁾ The villages in Korea and Taiwan had also been surveyed previously, so that the surveys were able to present observations on the intertemporal changes in those rural communities comparable with our findings in Southeast Asia. The farm households in the villages were selected basically by random sampling, after consideration had been given to the physiographic features of each village. Although random sampling was not essential to the analysis of the survey results for each village, it may have some significance should the analysis be ex-

tended to characterize rural development at the national level. The latter consideration for physiographic characteristics emphasizes the importance of environmental factors in studying the effects of the green revolution on rural development. This has been the findings of our staff in Thailand and Malaysia.⁵⁾ Since almost all the villages had been surveyed before, the location of households in each village was not difficult. After all households were numbered, about 30 were selected according to a table of random numbers. Then interviews were held by the experts, who, in most cases, had surveyed the village. The survey results were tabulated but have been interpreted carefully in light of the informal talks with the interviewees or their family members. For instance, although the formal answer was that the final decisions in the family were made by the husband, the influence of the wife is regarded to be very strong [8].

Some Findings

Throughout these surveys and their interpretations, the following observations

4) See K. Mizuno [5].

5) cf. S. Ichimura [1].

are fairly common to all.

Whenever the physiographic conditions of the village permit, the farmers are always ready to adopt higher yielding varieties of rice irrespective of whether they are traditional varieties or new high-yielding varieties. The improved technoeological adaptation brings about higher land productivity and an increase in household income. The majority of farmers, however, avoid taking risks and tend to wait until success is demonstrated. This pattern of the leader-follower process is significantly different from one country to the other.⁶⁾ The effect on household income greatly depends on the size of the family's land holdings and the availability of varieties of farming other than rice and non-agricultural employment opportunities. The households with larger land holdings show more visible responses to and benefit from the new rice-growing technology. The new economic conditions caused by the adoption of new technology impose a strain on tenants and small owner-farmers who must adjust to them with smaller benefits than large owner-farmers and owner-farmer landlords. This difference in the impact of new technology tends to aggravate the socio-economic differentiation among various classes of peasants and farmers, but such unfavorable effects are mitigated by the opportunities for earning non-farming incomes. Thus, depending on the relative strength

of favorable and unfavorable effects in a particular village, the techno-ecological adaptation process seems to create a wide range of effects in different regions of the country. It seems, therefore, very important to identify the troubled areas in the country in evaluating the impact of new rice-growing technology and its consequences in the socio-cultural changes.

The implications of such changes in the traditional pattern of village organization are also very significant, and as most researchers agree, the traditional Thai mode of organization described as figure-focal entourage system seems to show a clear sign of change [6]. Applying the same concept to Malay peasant communities, Y. Tsubouchi and M. Kuchiba note that the socio-cultural changes in Malay villages are also remarkable.⁷⁾ The leadership pattern in traditional Malay villages which rates communal leaders more highly than instrumental leaders seems to have been reversed between 1964 and 1976. Now the innovative and good organizers are more highly appreciated than before. M. Kuchiba points out, however, that this change may or may not reflect a tendency toward some form of local community organization or simply a development of various interest groups. On the other hand, efficiency in paddy-farming requires the spontaneous or autonomous cooperative organization of the farmers in order for the government efforts in

6) This was our findings also in our earlier field work. See, for instance, S. Ichimura *et al.* [2].

7) See Y. Tsubouchi [8] and M. Kuchiba [4].

rural development to be more effective. In this respect traditional elements in social organization still seem to be working negatively at the present time, though there have been some signs of modification as required by the big changes in technology and socio-economic conditions. It may be still too early to describe the overall consequences of the green revolution since its introduction only ten

years ago.

Compared with these observations in Thailand and Malaysia, the survey results in Korea and Taiwan show many striking differences in farmers' behavior patterns and social organization of the villages surveyed. Only two comparisons are presented here by way of example. The first deals with the question of whom the villagers turn to for help first in times

Table 1 Person Sought Out First for Help

		Borrowing Rice	Borrowing Money	Borrowing Tools	Transplant	Marriage & Funeral	Personal Matters
Parents	Malaysia	33.3	30.8	0	0	8.6	17.6
	Taiwan	3.0	2.5	1.5	0	2.0	27.5
	Korea	6.3	6.3	1.5	1.4	1.5	9.1
Sibling	Malaysia	33.3	7.7	0	0	28.3	11.8
	Taiwan	8.0	5.5	8.0	3.5	8.0	14.5
	Korea	4.7	3.1	3.0	5.3	9.0	24.2
Other Kins	Malaysia	17.0	53.8	0	71.4	32.6	41.2
	Taiwan	4.5	8.5	10.0	2.5	41.5	29.0
	Korea	14.0	9.4	6.1	2.9	31.3	33.3
Neighbors	Malaysia	0	0	0	14.2	28.3	5.9
	Taiwan	62.0	54.0	73.0	59.0	46.0	26.5
	Korea	75.0	81.2	89.4	89.9	58.2	33.3
Others	Malaysia	17.0	15.4	0	14.3	2.2	5.9
	Taiwan	22.5	29.5	7.5	35.0	2.5	2.5
	Korea	0	0	0	0	0	0

Table 2 The Main Duties of Village Headmen

	Ranking in Malaysia	Ranking in Korea
1. To convey administrative information to villagers	5	2
2. To organize villagers for irrigation work	9	7
3. To provide credit to villagers	8	8
4. To settle disputes among villagers	1	5
5. To present villagers' needs to government	2	3
6. To organize villagers for public works	3	6
7. To arrange religious activities	5	9
8. To protect & look after the village	3	1
9. To promote HYV of rice	7	4

of need. Table 1 indicates a very clear contrast between Southeast Asia and East Asia in the relative importance of kinship association *versus* societal association. The role of neighbors is far more important in Taiwan and Korea than in Malaysia, and moreover it is more conspicuous in Korea than in Taiwan.

As mentioned above, cooperative activities in farming are difficult to organize in Southeast Asia. This and other aspects of village organization can be seen in Table 2, which gives the main duties of village headmen in the eyes of villagers in Korea and Malaysia.⁸⁾

It seems that in Malaysia the role of village headman is definitely to represent the internal or endogenous values of the villagers, whereas in Korea it is an intermediary between government authorities and the villagers. The public functions are rated low in Malay villages, and the role of conducting the ordinary business of life appears more common to the average farmer in peaceful rural communities. The interested reader will

find other comparisons between East Asian agricultural developments and Southeast Asian ones in the following articles and earlier reports of this project.

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8) See Y. Tsubouchi [8] and M. Kuchiba [4] and the following article by Moon Shik Kim and Nai Won Oh as well as the one by Cheng-hung Liao and Martin M. C. Yang. Since the question on the main duties of village headmen was multiple choice, a direct comparison of percentage distribution was not possible. Ranking was determined by the size of percentage in each country.